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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,424	04/20/2004	Yuu Inatomi	43888-314	2569

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EXAMINER	
CHU, HELEN OK	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/827,424	INATOMI ET AL.	
	Examiner	Art Unit	
	Helen O. Chu	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2006 and 22 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-58* is/are pending in the application.

4a) Of the above claim(s) *20,23,26,29,31,33,36,39,42,45,48,51,54 and 57* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19,21,22,24,25,27,28,30,32,34,35,37,38,40,41,43,44,46,47,49-51,53,55 and 56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

Election/Restrictions

2. Applicant's election of Species 1A in the reply filed on May 25, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Examiner's Interpretation

3. It is interpreted by the Examiner the term "electrode" is defined as a conductor through which a current enters or leaves an electric or electronic device.

4. It is interpreted by the Examiner the tem "electrochemical device" is defined as a device that deals with chemical changes produced by electricity and the production of electricity by chemical changes.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 19, 21, 22, 24, 25, 27, 28 and 30 rejected under 35 U.S.C. 102(b) as anticipated being by Fujishita et al (US Publication 2002/0027415).

In regards to claims 19, 21, 22, 24, 25, 27, 28 and 30, the Fujishita et al. reference teaches a luminescent layer is sandwiched between two electrodes, and the device emits light by injecting an electron and a hole into an organic luminescent layer and recombining them (Applicant's electrode active material; Paragraph 2). The Fujishita et al. reference teaches the Applicant's compound structures (Formula 1; Page 2, Paragraph 14) with eleven structure variations, which stems from the Applicant's general compound structure with aliphatic group in the range of 1 to 6 carbons. The Fujishita et al. reference also discloses that R_4, R_5, R_6 include vinyl or 1-3, butadienyl (Paragraph 20) where there is a free radial at the carbon with a double bond (Applicant's polyacetylene chain).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 32, 34, 35, 37, 38, 40, 41, 43, 44, 46, 47, 49, 50, 52, 53, 55, 56, 58 rejected under 35 U.S.C. 103(a) as being unpatentable over Fujishita et al. as applied to claims 19, 21, 22, 24, 25, 27, 28 and 30 above, and further in view of Zhang et al. (US Patent 6,110,619)

The Fujishita et al. reference discloses Applicant's claimed structures of organo-sulfur electrode active materials used in an electrochemical device but does not disclose further specification of the electrochemical device as in Zhang et al. The Zhang

et al. reference teaches a secondary battery (Column 1, Line 37) comprising a positive electrode, a negative electrode and an electrolyte where the positive electrode has an organo-sulfur structure (Column 2, Line 52). The negative electrode active material includes a carbon material and a lithium metal (Column 6, Lines 5-7). The positive electrode active material includes a metal oxide (Column 5, Line 63-64) and is mixed with a conductive material (Column 5, Lines 54-56). The Zhang reference further discloses the electrolyte comprises a solvent where the anion and lithium cation diffuse in and the compound is capable of forming a coordinate bond with the lithium cation by oxidation-reduction reaction (Column 8, Lines 6-22). In addition, the Zhang et al. reference teaches the secondary battery improves the cycling efficiency (Column 1, Lines12-14), hence, it would have been obvious to one of ordinary skill at the time the invention was made to incorporate the compound as taught by the Fujishita reference with the battery as taught by the Zhang reference in order to prolong the life of the battery.

It is noted that claims 50, 52, 53 and 55, are product-by-process claims. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since product is

similar to that of the Applicant's, Applicant's process is not given patentable weight in this claim.

Response to Arguments

9. Applicant's arguments filed March 22, 2006 have been fully considered but they are not persuasive.

Applicant's principle arguments are

a) Fujishita teaches an organic electroluminescent device in which the compounds are contained in the hole-injecting layer into which light is emitted by injection an electron and a hole into an organic luminescent layer. Thus, the compounds described in the present invention are NOT used in an electrochemical device, nor do they comprise the electrode active material of said electrochemical device.

(b) Fujishita does not teach that the compounds are capable of providing a long life to electrochemical devices, rather, they provide a material used in the organic layer sandwiched between the electrodes in an electroluminescent device..... Thus, netiher Zhang nor Fujita disclose an electrode active material for an electrochemical device, comprising compounds having a structure represented by the general formulae (1a), (1b) and 2.

(c) Claim 20 discloses nitrogen containing compounds, not sulfur containing compounds as disclosed in Fujishita.

(d) It is submitted that Zhang and Fujishita , alone or in combination, do not render claims 19, 20, 21, or any dependent claims thereon obvious.

In response to Applicant's arguments:

(a) The electrode as defined in Fujishita et al. reference is equivalent to that of Applicant's. Please take note of the term "electrode" in Examiner's Interpretation. Fujishita et al. discloses that electrons are transferred in and out (also known as a current; Paragraph 2) of the luminescent layer. Thus, the luminescent layer is equivalent to that of Applicant's electrode active material.

(b). The electroluminescent device as taught by Fujishita et al. is equivalent as an electrochemical device taught by the Applicant. Please take note in Examiner's Interpretation of the term "electrochemical" device. The Fujishita et al. teaches that this electroluminescent device has an electroluminescent layer that transfers electrons and holes in which the electrons occupy. These electrons come from the organo-sulfur compounds as disclose in the Fujishita et al. reference, in essence, to illuminate the device or produce energy. Thus the electroluminescent device and the electrochemical device are then same.

(c) Claim 20 is withdrawn from consideration due to the Applicant's Election/Restriction received on March 22, 2006.

(d) In respect to claims 19 and 21, a prior art reference is analogous if the reference is in the field of the applicant's endeavor or, if not, the reference is reasonably pertinent to the particular problem with which the inventor was

concerned. In re Oetiker 977 F.2s 1443, 1446, 24 USPQ 24 USPQ2d 1443, 1445 (Fed. Cir. 1992)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER